

# 5. GENERAL AVIATION FORECASTS

## I. Overview

The VATSP Update serves as the strategic plan for the Commonwealth of Virginia's air transportation system, ensuring that the Commonwealth has a safe and reliable network of airports to efficiently serve the needs of both residents and visitors. One of the most important steps in creating this strategic plan is the development of reasonable estimates of future demand. These forecasts of based aircraft and operations determine the future facility requirements of the airports in the system and help the Virginia Department of Aviation assess the relative costs and benefits of potential improvements and investments.

This chapter describes the forecasts of general aviation (GA) activity developed for each of the Commonwealth's sixty-eight public-use airports and for the airports under development by the Department of Aviation and the Federal Aviation Administration (FAA). The sixty-eight public-use airports are divided into fifty-nine general aviation airports and nine air carrier airports. Airports under development include replacement airports (Lee County and Tappahannock) and new airports (Stafford). During the course of this study, two privately owned, public use airports were closed by owners (Whitman Strip and Kellam Field). In addition, Stafford County opened in 2001 and Lee County opened in 2002. Proposed airports that are specifically excluded from this VATSP Update (since there are no assurances that they will be licensed and operating during the forecast period) include Northern Neck, Rocky Mount – Franklin County, Grundy, and Lexington.

Forecasts of based aircraft and operations at each individual airport were developed for different categories of aircraft based on a range of historical data as well as projections of future activity such as the FAA Terminal Area Forecasts and master plans for the individual airports in the system. Projections of short-, intermediate-, and long-term activity were developed for the years 2005, 2015, and 2020, respectively. Preliminary forecasts were developed using a variety of methodologies, and then a preferred forecast was selected to represent the most reasonable estimate of future air transportation demand.

## II. Based Aircraft

Based aircraft are an important indicator of the changes at an airport and drive many facility requirements. As shown in Table 1, the Commonwealth experienced slow growth in the number of based aircraft during the early 1990's; however, in more recent years that growth has increased. The fastest growth is concentrated in the northeast part of the state at airports such as Manassas, Culpeper, and Leesburg, as well as the southeastern part of the state at airports like Suffolk, Wakefield, and Petersburg.

Conversely, FAA records indicate a decline in active aircraft in the early 1990's for the nation as a whole, with a slower recovery in the latter part of the decade.<sup>4</sup> The decline most likely corresponds to the recession in the early part of the decade, as well as other factors such as the Gulf War. The recovery seems to follow the economic recovery of the nation as a whole, and may also reflect the impacts of the General Aviation Revitalization Act of 1994.

Between 1990 and 2000, Virginia (VA) based aircraft grew by 1.6 percent annually while active US aircraft grew by 0.2 percent. This indicates that for the past decade, growth in based aircraft in the Commonwealth has been stronger than growth in the nation as a whole.

**GAF – Table 1**  
**Historic Growth Rates Between 1990 and 2000**  
*VA Based Aircraft vs. US Active Air Taxi and GA Aircraft*

	<b>VA Based Aircraft</b>	<b>US Active GA and Air Taxi Aircraft</b>
<b>Year</b>		
1990	2,705	205,000
1995	2,772	188,000
2000	3,182	209,000
<b>Avg. Ann. Growth</b>		
1990 - 1995	0.5%	-1.7%
1995 - 2000	2.8%	2.1%
1990 - 2000	1.6%	0.2%

*Source: FAA Aerospace Forecasts, VATSP Update Database*

### ***Preliminary Forecasts***

After reviewing the historic changes in VA based aircraft relative to the changes in the US as a whole, forecast methodologies used in other state system plans were evaluated. Based on the applicability of the various methodologies to the VATSP Update, four different methodologies for forecasting based aircraft were designed and tested:

- **Linear Trend Forecast** – This forecast looked at the historic growth at each airport in terms of based aircraft per year. The five-year and ten-year growth rates were analyzed and averaged, and future growth through 2020 was assumed to continue at this average rate. Limits were set to prevent declining forecasts or forecasts of extreme growth, and rates were adjusted manually in cases where the resulting growth rates were unreasonable.

---

<sup>4</sup> *FAA Aerospace Forecasts FY1996-2007* and *FAA Aerospace Forecasts FY2000-2011*, Total Active GA and Air Taxi Aircraft Forecasts.

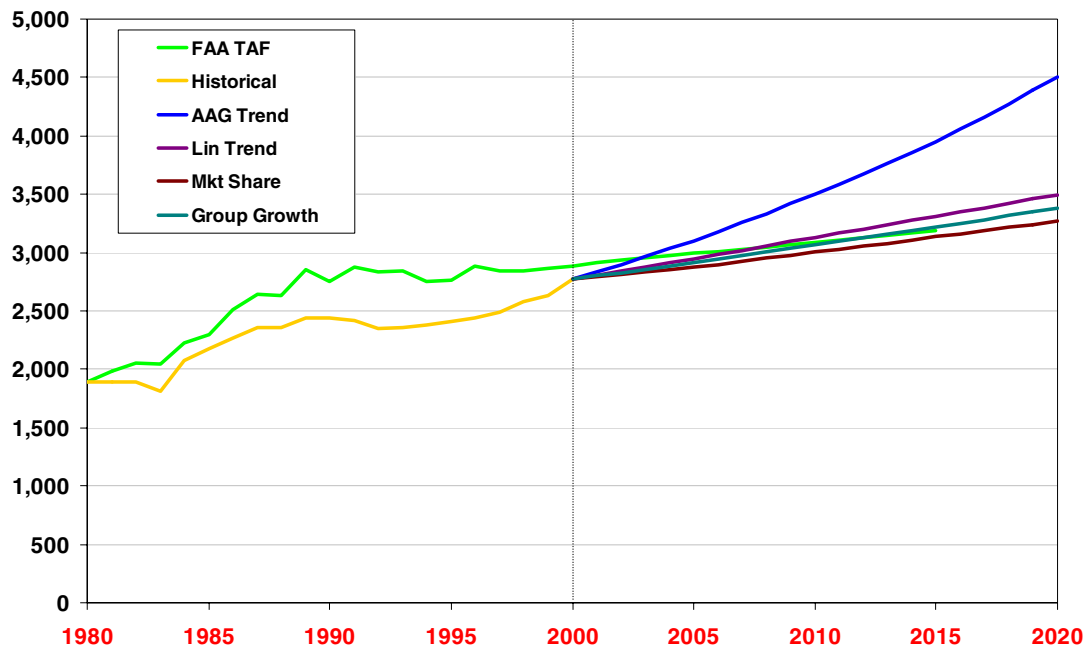
- Market Share Forecast – The market share forecast builds off of the current share of Virginia’s total based aircraft at each individual airport by looking at the change in each individual airport’s market share over the past five years and the past ten years. The five-year and ten-year rates of change in individual airport market share were averaged and projected into the future at a declining rate. Once again, manual adjustments were made to temper the growth at airports that had substantial market share changes. This process resulted in a market share at each airport in each of the future forecast years, which was then applied to a forecast of total Virginia based aircraft growth.
- Average Annual Growth Rate Trend Forecast – The methodology for this forecast was nearly identical to that of the linear trend forecast, but projections were made based on the average annual growth rate percentages rather than the growth in terms of based aircraft per year.
- Group Growth Rate Forecast – For this forecast, airports were grouped into five categories based on growth trends in based aircraft, population, and income as well as consideration of sponsor expectations such as planned facility improvements. Forecast growth rates were assigned to each group resulting in an overall forecast for based aircraft in Virginia and a forecast at each individual airport.

Exhibit 1 presents the results of these four forecast methodologies graphically. Only the totals for VATSP airports with FAA Terminal Area Forecasts are presented here so that the forecasts can be directly compared with the FAA projections. The average annual growth rate forecast exhibited the fastest growth, while the market share forecast produced the slowest growth. The linear trend forecast was selected as the preferred methodology since it represents a reasonable mid-range forecast with long-term growth of 1.6 percent annually (2000-2020), consistent with growth over the past decade (1990 – 2000). When only the subset of airports with Terminal Area Forecasts are considered, the growth is 1.2 percent annually with the preferred methodology (2000 – 2015), slightly higher than the FAA TAF growth rate of 0.7 percent per year for the same period and the same subset of airports. The preferred forecast of based aircraft for all airports is presented in Table 8 located on pages 39–41.

## GAF - Exhibit 1

### Comparison of Based Aircraft Forecast Methodologies

*VATSP Airports with Terminal Area Forecasts*



### ***Preferred Forecast Methodology***

Since the preferred forecast serves as an input to the operations forecasts, it is important to understand the detailed forecast methodology. This forecast methodology was applied to each of the Commonwealth's existing public-use airports, with adjustments made to account for the three airports currently under development.

First, the five- and ten-year growth rates in terms of based aircraft per year were compiled for each individual airport. These were averaged to determine the default long-term growth rate for each individual airport. For the Commonwealth as a whole, based aircraft increased by 47 based aircraft per year over the past 10 years (0.7 based aircraft per year per airport) and 66 based aircraft per year over the past five years (1.0 based aircraft per year per airport).

Next, it was assumed for planning purposes that each individual airport (except those being replaced) would retain, at a minimum, the level of based aircraft observed in 2000. To maintain consistency with the projected growth for the Commonwealth as a whole, growth at individual airports was also constrained to a maximum level. For airports with more than 100 based aircraft in 2000, the maximum growth rate was assumed to be 4 based aircraft per year; for those with fewer than 100 based aircraft, the maximum was 2 based aircraft per year.

The resulting growth rates were next examined for reasonableness and adjusted manually if necessary. For example, in cases where a decline between 1990 and 1995 resulted in a high “recovery” growth rate in the late 1990’s, the long-term growth was set to the ten-year historic growth rate rather than the average of the five- and ten-year rates. This adjustment procedure was utilized for airports such as Accomack County and Lynchburg Regional. Similar adjustments based on professional judgement were made in other cases where circumstances at an individual airport produced unreasonable forecasts of future activity.<sup>5</sup>

The replacement airport in Lee County is expected to open in 2005, and the new Tappahannock airport in 2007. The existing airports will be closed at the same time. The new airports were each assumed to gain some additional based aircraft within the first five years of operation due to the infrastructure improvements, with growth then continuing at the long-term rates developed in the individual forecasts for the new airports.

For the new Stafford airport, the planning level of 33 based aircraft was assumed to exist by the end of 2001, with growth to 39 based aircraft by 2005. It was also assumed that 75 percent of the initial aircraft at Stafford would come from Manassas and Shannon. Growth was assumed to continue at the rate of Manassas and Shannon alone (4.3 based aircraft per year), with one-third of future growth occurring at Stafford and growth at Manassas and Shannon declining proportionally.

### ***Validation***

The FAA Terminal Area Forecasts and various airport master plan forecasts were used to provide internal validation of the preferred based aircraft forecasts. These individual forecast comparisons are presented in Table 9 on pages 42–44. For those airports with FAA Terminal Area Forecasts, additional validation was performed by comparing various groups of airports as shown in Table 2.

---

<sup>5</sup> Additional airports where the default growth rates were adjusted include Norfolk, Richmond, Roanoke, Shenandoah Valley, and Wakefield Municipal, as well as the new airports and those influenced by them.

GAF – Table 2

## Comparison of VATSP and FAA Based Aircraft Forecasts

*VATSP Airports with Terminal Area Forecasts*

Airport Category	Historic			Forecast		Avg Annual Growth	
	1990	1995	2000	2005	2015	1990-2000	2000-2015
<b>VA Airports</b>							
VATSP	2,435	2,412	2,773	2,946	3,313	1.3%	1.2%
FAA TAF	2,752	2,760	2,889	2,991	3,191	0.5%	0.7%
<b>GA Airports</b>							
VATSP	1,785	1,781	2,028	2,161	2,449	1.3%	1.3%
FAA TAF	1,939	2,064	2,099	2,168	2,309	0.8%	0.6%
<b>Air Carrier Airports</b>							
VATSP	650	631	745	785	864	1.4%	1.0%
FAA TAF	813	696	790	823	882	-0.3%	0.7%
<b>Northern Virginia Mini-System</b>							
VATSP	504	474	554	590	643	1.0%	1.0%
FAA TAF	503	688	656	686	748	2.7%	0.9%
<b>Southeast Virginia Mini-System</b>							
VATSP	351	329	404	424	465	1.4%	0.9%
FAA TAF	461	404	409	422	447	-1.2%	0.6%

Source: FAA Terminal Area Forecasts, VATSP Update Database

Notes:

Includes only those airports with FAA Terminal Area Forecasts

Northern Virginia System includes Shannon, Manassas, Stafford, Warrenton Fauquier, and Culpeper.

Southeast Virginia System includes Hampton Roads, Suffolk, Chesapeake, and Norfolk

For those airports with Terminal Area Forecasts, the VATSP and FAA Terminal Area Forecasts were compared for all Virginia airports, for GA airports, for air carrier airports, and for two “mini-systems” of airports. The northern Virginia min-system includes Shannon, Manassas, Stafford, Warrenton Fauquier, and Culpeper. The southeast Virginia mini-system includes Hampton Roads, Suffolk, Chesapeake, and Norfolk. These two systems are compared to examine the VATSP forecasts from a more regional perspective.

For the Virginia air transportation system as a whole, the VATSP Update forecasts project slightly faster future growth than the Terminal Area Forecasts. Similar differences occur when GA and air carrier airports are considered separately and even when the two “mini-systems” of airports are analyzed.<sup>6</sup> It should be noted that although the VATSP Update forecasts show more aggressive growth than the FAA Terminal Area Forecasts for VA airports, the forecasts are still fairly conservative. In all cases, the forecast growth rate is less than or equal to the historic growth rate, and while the VATSP forecasts show faster growth, they show fewer based aircraft than the FAA forecasts for some subsets of airports. These

<sup>6</sup> The two “mini-systems” considered were the Hampton Roads-Suffolk-Chesapeake-Norfolk system and the Shannon-Manassas-Stafford system

small differences between the VATSP and FAA forecasts are further explained by the differences in the historic growth rates observed in the two datasets.<sup>7</sup>

While the number of based aircraft determines some facility requirements, the mix of aircraft types is also extremely important. Table 3 compares the historic growth in the national fleet by aircraft category with the growth at the VATSP airports. The table also shows the FAA projections for national growth and presents the assumptions used in the VATSP Update based aircraft fleet mix forecasts.

**GAF – Table 3**  
**Historic and Future Average Annual Growth Rates By Based Aircraft Type**

<b>Forecast and Period</b>	<b>Single Engine Piston</b>	<b>Multi Engine Piston</b>	<b>Multi Engine Turboprop</b>	<b>Multi Engine Jet</b>	<b>Heli- copter</b>	<b>Other</b>	<b>Total</b>
<b>FAA Aerospace Forecasts</b>							
1990-2000	-0.8%	-1.5%	0.7%	5.2%	1.0%	12.1%	0.2%
2000-2011	0.7%	0.0%	1.2%	4.7%	1.4%	1.4%	0.9%
<b>VATSP Update</b>							
1990-2000	1.2%	0.9%	2.8%	10.2%	6.0%	6.3%	1.6%
2000-2005	1.0%	0.4%	2.0%	7.5%	3.7%	3.9%	1.6%
2005-2015	0.7%	0.0%	1.2%	4.7%	1.4%	1.4%	1.4%
2015-2020	0.7%	0.0%	1.2%	3.5%	1.4%	1.4%	1.2%

*Source: FAA Aerospace Forecasts, VATSP Update Database*

As expected given the overall differences in the national and VA growth rates, VA growth by based aircraft category has historically been faster than national growth. However, in both the Commonwealth and the nation, multi-engine jets represented one of the fastest growing aircraft categories between 1990 and 2000, while single- and multi-engine pistons represented the slowest growth. This pattern is expected to continue. The *FAA Aerospace Forecasts, FY2000 – 2011* show that the piston categories will continue to show the slowest growth in the nation, while the jets will grow the fastest. In order to capture the faster historic growth at the VATSP airports relative to the nation, as well as the projected national trends, three sets of growth rates were defined for the VATSP Update based aircraft fleet forecasts:

- Between 2000 and 2005, each category of based aircraft was projected to grow at the average of the VATSP airport historic rate and the FAA projected rate for the nation.
- From 2005 to 2015, growth in each category was projected to decline slightly to the FAA projected rate.

<sup>7</sup> The FAA Terminal Area Forecasts use historic data reported to the FAA, while the VATSP database combines information from local, state and federal sources to create the most accurate representation possible.

- Between 2015 and 2020, the rapid growth in multi-engine jets was tempered further to reflect the fact that high growth rates typically decline over time. It should be noted, however, that jets remain the fastest-growing category, even with the tempered growth rate.

These growth rates were applied to the 2000 fleet mixes at each individual airport, and the resulting mix in each forecast year was then normalized to match the total based aircraft forecast for the airport as a whole. Manual adjustments were made for airports without jet or turboprop based aircraft that were expected to have such aircraft in the future.<sup>8</sup> For the three new airports, the initial fleet mix was based upon existing fleet forecasts for each individual airport as well as historic fleet mix data for the airports they impact or replace. The resulting based aircraft fleet mix forecast is presented later in Table 10 on pages 45–50.

### Validation

For validation purposes, the fleet mix forecasts are compared with the FAA projections in Table 4. The historic fleet mixes are similar, but the national mix has more aircraft in the helicopter and other categories. More importantly, the future changes in fleet mix are similar. The share of piston aircraft in the Commonwealth is larger than the national share and declining more slowly, consistent with historic trends and future expectations. The share of jet aircraft in Virginia is slightly higher than the national average, and is growing faster than the national share. This is also consistent with historic and expected trends.

**GAF – Table 4**  
**Existing and Future Fleet Mix By Based Aircraft Type**

Forecast and Period	Single Engine Piston	Multi Engine Piston	Multi Engine Turboprop	Multi Engine Jet	Heli- copter	Other	Total
<b>FAA Aerospace Forecasts</b>							
1990	77.5%	10.7%	2.9%	2.0%	3.4%	3.5%	100.0%
2000	70.2%	9.0%	3.0%	3.3%	3.7%	10.8%	100.0%
2010	68.7%	8.2%	3.1%	4.8%	3.9%	11.3%	100.0%
Avg Ann Chg: 1990-2010	-0.4%	-0.1%	0.0%	0.1%	0.0%	0.4%	0.0%
<b>VATSP Update</b>							
1990	80.9%	11.8%	2.7%	2.1%	0.7%	1.8%	100.0%
2000	77.0%	10.8%	3.6%	4.3%	1.3%	3.0%	100.0%
2005	76.0%	10.1%	3.7%	5.6%	1.4%	3.3%	100.0%
2015	75.6%	8.9%	3.8%	7.0%	1.3%	3.4%	100.0%
2020	75.5%	8.5%	3.8%	7.6%	1.3%	3.4%	100.0%
Avg Ann Chg: 1990-2020	-0.2%	-0.1%	0.0%	0.2%	0.0%	0.1%	0.0%

Source: FAA Aerospace Forecasts, VATSP Update Database

<sup>8</sup> Chesapeake, Dinwiddie, Mecklenburg, New River Valley, Virginia Highlands, and Virginia Tech were all assumed to have some turboprop or jet based aircraft in the future.

### III. Operations Forecasts

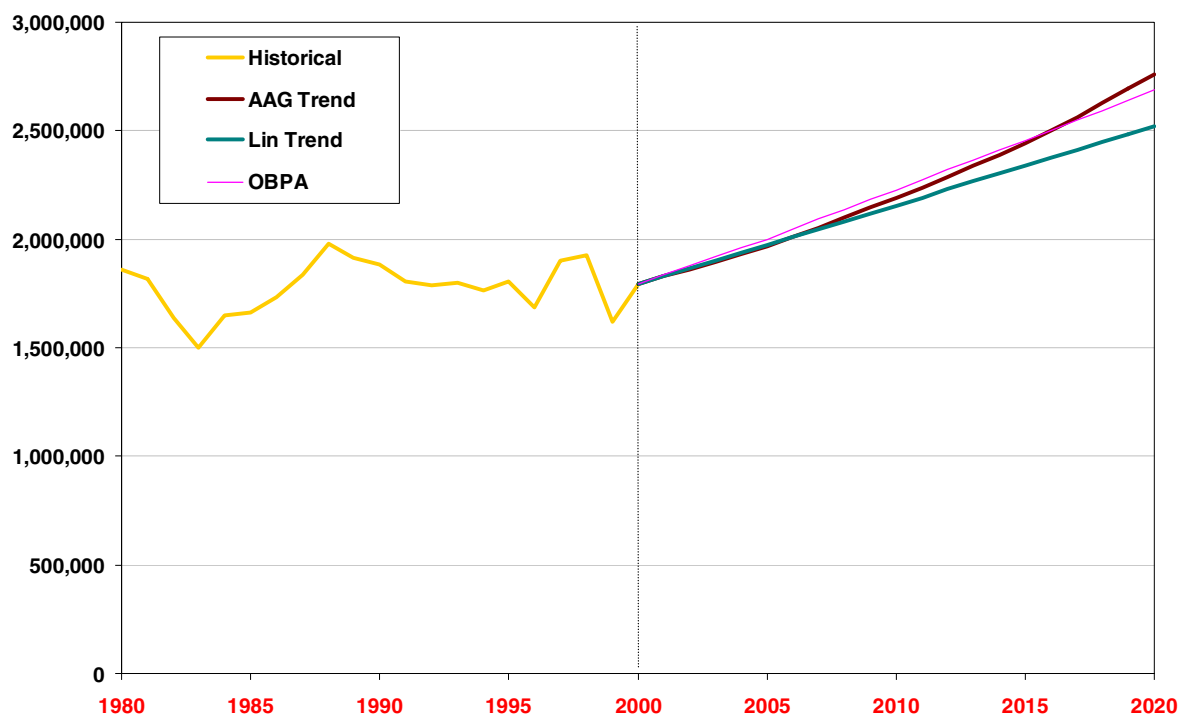
As with the based aircraft forecasts, different methodologies were tested to allow selection of a preferred operations forecast:

- Linear Trend Forecast – Like the based aircraft linear trend forecast, five-year and ten-year growth rates in operations per year were averaged and projected forward. Limits and manual adjustments were used when growth rates appeared excessive. As with the based aircraft forecasts, it was assumed for planning purposes that each system airport would, at a minimum, maintain the level of operations reported for calendar year 2000.
- Average Annual Growth Rate Trend Forecast – The methodology was similar to the linear trend, but projections were made based on the average annual growth rate percentages rather than the growth in terms of operations per year.
- Operations per Based Aircraft Forecast – Civil Air Patrol (CAP) survey data and FAA tower counts for thirty-one Virginia airports were used to derive ratios of operations per based aircraft for various aircraft classes. These ratios were then used to project operations from the preferred based aircraft forecast.

Exhibit 2 compares the results of the preliminary operations forecasts. Although the various methodologies produced similar growth rates, examination of the forecast results led to the conclusion that the historic operation counts were simply not accurate enough for a reasonable trend analysis. While the most reliable data available has been compiled by the study team from airport master plans, Civil Air Patrol surveys, FAA, the Department of Aviation, and other available data sources, the historic trends in the operations counts suggest reporting inconsistencies.

The trend forecasts were therefore discarded and the operations per based aircraft (OPBA) forecast was selected as the preferred methodology. Several iterations were performed to test different aircraft groupings and methodologies, resulting in a formula for relating based aircraft to operations and different methodologies for applying that formula.

**GAF - Exhibit 2**  
**Comparison of Operations Forecast Methodologies**  
*All VATSP Airports*



***Preferred Methodology***

The 1990 VATSP developed a formula relating operations to based aircraft using tower counts and survey data from 1987:

$$\text{Operations} = 2,700 + 487 \times \text{Based Aircraft}$$

Using updated tower counts and CAP data from 1998, new ratios of operations per based aircraft were developed that considered the mix of based aircraft by type. These ratios are presented in Table 5.

GAF – Table 5

## Estimated OPBA Compared with National GA Survey

<b>Aircraft Type</b>	<b>Estimated Operations per Based Aircraft</b>	<b>GA and Air Taxi Survey (Operations per Active Aircraft)</b>
Single Engine Piston	368	321
Multi Engine Piston	363	411
Multi Engine Turboprop or Turbojet	742	734
Other	598	578
<b>Total</b>	<b>405</b>	<b>391</b>

*Sources:**FAA General Aviation and Air Taxi Activity Survey, July 2000.**FAA Tower Counts, 1998 CAP Survey*

These OPBA ratios represent the median values for the thirty-one airports for which data was available (twenty-two non-towered airports with CAP data and nine towered airports with FAA tower counts). The ratios are slightly lower than the ratio reflected in the 1990 VATSP formula, but are reasonable when compared with the data from the *FAA General Aviation and Air Taxi Activity Survey*. As another reasonability check, FAA planning guidelines recommend GA OPBA ratios ranging from 250 for low activity airports up to 450 for high activity airports. The derived ratios from the CAP surveys and tower counts are generally consistent with these values.

The new ratios were used to develop operations forecasts directly from the preferred based aircraft forecasts. The OPBA ratios for individual aircraft classes were assumed to increase over time at a rate of 0.6% annually based upon national rates in the *FAA Aerospace Forecasts, FY2000 – 2011*. Three different methodologies were used to estimate operations from based aircraft. In the first, the median OPBA ratios in Exhibit 7 were used to directly calculate operations from the based aircraft forecasts for each airport without considering any historical operations data. In the second methodology, the individual OPBA ratios derived for those airports with CAP or tower count data were used to calculate operations rather than the average ratios used for the non-towered airports.

The third methodology was the same as the second, but the forecasts were re-scaled to match the 2000 base year operations in the VATSP Update Database.

After careful examination of the resulting forecasts, the preferred methodology was chosen. Due to the inconsistency of the historic operations data, the median values from Table 5 were used to generate

operations forecasts for all of the VATSP airports. For those airports with tower count data, the forecast growth was applied to the 2000 operations counts to maintain consistency with the historic data streams.<sup>9</sup>

There is one weakness associated with deriving the operations forecasts directly from the based aircraft. The methodology assumes the ratio of local to transient operations is relatively constant across airports and that the local fleet mix is similar to the transient mix. To account for this difference, 1998 CAP data was used to examine the fleet mix of transient operations.

Table 6 presents the mix of transient operations for the 22 airports included in the CAP survey. The airports are divided into those airports with runways less than 4,000 feet and those with runways greater than 4,000 feet, as it was assumed that this runway length indicated that airports were “jet capable”.

**GAF – Table 6**  
**Mix of Transient Aircraft**

<b>Airport</b>	<b>Transient % of Total</b>	<b>Transient Mix</b>						
		<b>S.E.</b>	<b>L.T.R.</b>	<b>T.T.P.</b>	<b>B.J.</b>	<b>Helic</b>	<b>Ultra</b>	<b>Unknown</b>
Runway > 4000'	29%	71%	10%	7%	3%	7%	2%	0%
Runway < 4000'	31%	81%	7%	0%	0%	10%	2%	0%
<b>Total</b>	<b>30%</b>	<b>73%</b>	<b>9%</b>	<b>6%</b>	<b>3%</b>	<b>7%</b>	<b>2%</b>	<b>0%</b>

*Source: 1998 CAP Survey*

As shown in the table, approximately 30 percent of sampled operations were transient operations. For those airports with runways greater than 4,000 feet, turboprops and jets make up 10 percent of the transient operations. For airports with shorter runways, there are no turboprop or jet operations. Based on this analysis, the operations forecasts were adjusted. The original forecasts for each airport (determined by the based aircraft mix only) were reduced by thirty percent, and that thirty percent was replaced using the distribution of transient operations as appropriate for the airport’s runway length. For the two airports with a very high percentage of transient operations (Ingalls Field and Marks Municipal), the forecasts were adjusted so that the total operations were based on the airport’s reported numbers (rather than on the OPBA formula) and so that a larger proportion of the fleet mix was based on the assumed mix of transient operations. The resulting VATSP Update operations forecasts are presented in Table 11 on pages 51–56.

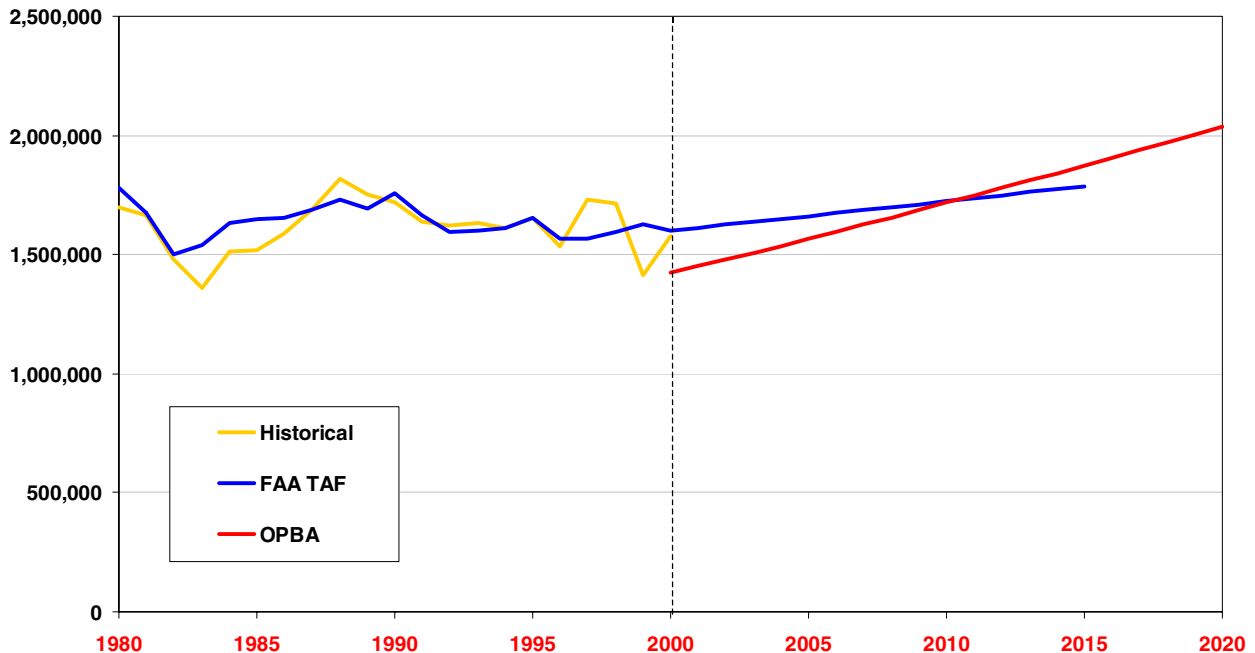
### **Validation**

The FAA Terminal Area Forecasts and various airport master plan forecasts were used to provide internal validation of the operations forecasts. The individual forecast comparisons are presented in Table

<sup>9</sup> For Shannon, the number of operations calculated using the median values from Exhibit 7 differed significantly from the CAP and other airport data. For this airport, the forecast growth was applied to the 2000 operations count to maintain consistency with the historic data stream.

12 on pages 57–59. For those airports with FAA Terminal Area Forecasts, additional validation was performed by comparing various groups of airports as shown in Exhibit 3 and Table 7.

**GAF - Exhibit 3**  
**Comparison of Operations Forecasts**  
*VATSP Airports with Terminal Area Forecasts*



As with the based aircraft forecasts, the VATSP Update operations forecasts show faster growth than the FAA Terminal Area Forecasts, and this faster growth is consistent across all airport groupings. Since the OPBA ratios are expected to grow slightly over time, it is reasonable to expect operations overall to grow faster than based aircraft, as is the case with the VATSP Update forecasts. Most of the differences in the forecasts are due to the differences in the historic data. Thus, while VATSP operations at GA airports are forecast to grow faster than FAA projections, the absolute number of operations is actually slightly lower than the FAA forecast.

GAF – Table 7

## Comparison of VATSP and FAA Operations Forecasts

*VATSP Airports with Terminal Area Forecasts*

Airport Category	Historic		Forecast		Avg Annual Growth	
	1990	1995	2000	2005	2015	1990-2000 2000-2015
<b>VA Airports</b>						
VATSP	1,721,519	1,651,216	1,425,443	1,564,238	1,871,829	-1.9% 1.8%
FAA TAF	1,759,460	1,652,920	1,599,438	1,661,209	1,786,521	-0.9% 0.7%
<b>GA Airports</b>						
VATSP	1,047,440	1,015,999	778,095	867,441	1,068,802	-2.9% 2.1%
FAA TAF	1,086,517	1,016,087	973,255	1,008,692	1,078,234	-1.1% 0.7%
<b>Air Carrier Airports</b>						
VATSP	674,079	635,217	647,348	696,797	803,027	-0.4% 1.4%
FAA TAF	672,943	636,833	626,183	652,517	708,287	-0.7% 0.8%
<b>Northern Virginia Mini-System</b>						
VATSP	205,730	193,045	201,744	225,093	263,801	-0.2% 1.8%
FAA TAF	207,730	193,133	189,722	201,351	223,275	-0.9% 1.1%
<b>Southeast Virginia Mini-System</b>						
VATSP	222,798	240,236	163,159	177,322	206,601	-3.1% 1.6%
FAA TAF	263,904	234,726	180,037	181,192	183,503	-3.8% 0.1%

Source: FAA Terminal Area Forecasts, VATSP Update Database

Notes:

Includes only those airports with FAA Terminal Area Forecasts

Northern Virginia System includes Shannon, Manassas, Stafford, Warrenton Fauquier, and Culpeper.

Southeast Virginia System includes Hampton Roads, Suffolk, Chesapeake, and Norfolk

## IV. Summary

In summary, the VATSP Update forecasts of general aviation based aircraft and operations considered historic data from the Department of Aviation, the FAA, airport master plans, and Civil Air Patrol surveys. A number of forecast methodologies were devised and tested, and a preferred methodology was selected that represented the most reasonable estimate of future activity. Based aircraft were estimated using a linear trend methodology, with adjustments made to account for individual airport characteristics and new airport construction. Since the validity of the historic operations data was somewhat questionable, an operations forecast methodology was devised to estimate future operations using the number and mix of based aircraft at each airport. This methodology took advantage of the most accurate information available while avoiding the pitfall of unreliable historic data.

The VATSP Update forecasts reflect growth in based aircraft and operations that is slightly faster than FAA projections. The VATSP Update forecasts represent a reasonable future scenario for planning purposes, and include a breakdown of based aircraft and operations by aircraft type that can be used to determine existing and future facility requirements for the Commonwealth's air transportation system.

**TABLE 8**  
**VATSP UPDATE BASED AIRCRAFT FORECAST**

Airport Name	Historic Based Aircraft			Annual Growth Rates		BAC 2000	Future Growth Rates		Forecast Based Aircraft		
	1990	1995	2000	Based Aircraft per Year			Baseline Projection	Manual Adjustment	2005	2015	2020
				1990 - 2000	1995 - 2000						
General Aviation Airports											
Accomack County	14	16	25	1.1	1.8	25	1.5	1.1	31	42	47
Blackstone Municipal	5	7	7	0.2	0.0	7	0.1	0.1	8	9	9
Blue Ridge	62	64	56	(0.6)	(1.6)	56	0.0	0.0	56	56	56
Bridgewater Air Park	14	23	17	0.3	(1.2)	17	0.0	0.0	17	17	17
Brookneal-Campbell County	4	4	2	(0.2)	(0.4)	2	0.0	0.0	2	2	2
Chase City Municipal	2	5	5	0.3	0.0	5	0.2	0.2	6	7	8
Chesapeake Regional	62	64	70	0.8	1.2	70	1.0	1.0	75	85	90
Chesterfield County	106	109	112	0.6	0.6	112	0.6	0.6	130	136	139
Crewe Municipal	10	9	10	0.0	0.2	10	0.1	0.1	11	12	12
Culpeper County	20	90	111	9.1	4.2	111	4.0	4.0	131	171	191
Danville Regional	44	35	41	(0.3)	1.2	41	0.5	0.5	43	48	50
Dinwiddie County Airport	25	43	81	5.6	7.6	81	2.0	2.0	91	111	121
Emporia-Greenville Regional	7	8	3	(0.4)	(1.0)	3	0.0	0.0	3	3	3
Falwell	13	14	16	0.3	0.4	16	0.4	0.4	18	21	23
Farmville Regional	18	24	24	0.6	0.0	24	0.3	0.3	26	29	30
Franklin Municipal	7	13	12	0.5	(0.2)	12	0.2	0.2	13	14	15
Front Royal-Warren County	21	17	24	0.3	1.4	24	0.9	0.9	28	37	41
Gordonsville Municipal	6	11	15	0.9	0.8	15	0.9	0.9	19	28	32
Grundy Municipal	8	10	10	0.2	0.0	10	0.1	0.1	11	12	12
Hampton Roads	140	140	147	0.7	1.4	147	1.1	1.1	152	163	168
Hanover County Municipal	59	62	69	1.0	1.4	69	1.2	1.2	75	87	93
Hartwood Field	13	5	9	(0.4)	0.8	9	0.2	0.2	10	12	13
Hummel Field	26	27	29	0.3	0.4	29	0.4	0.3	31	34	35
Ingalls Field	2	3	6	0.4	0.6	6	0.5	0.5	9	14	16
Kellam Field	2	5	5	0.3	0.0	5	0.2	0.2	6	7	8
Lake Anna	3	2	1	(0.2)	(0.2)	1	0.0	0.0	1	1	1
Lawrenceville-Brunswick	3	4	5	0.2	0.2	5	0.2	0.2	6	8	9
Lee County	3	3	5	0.2	0.4	5	0.3	0.3	7	-	-
Lee County (Replacement)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.4	-	16	18
Leesburg Executive	182	183	211	2.9	5.6	211	4.0	4.0	231	271	291

**Notes:**

Growth rate constrained between 0 and 2 based aircraft per year for airports with less than 100 BAC in 2000

Growth rate constrained between 0 and 4 based aircraft per year for airports with more than 100 BAC in 2000.

  Boxed cells indicate manual adjustments due to new airports

**TABLE 8**  
**VATSP UPDATE BASED AIRCRAFT FORECAST**

Airport Name	Historic Based Aircraft			Annual Growth Rates		BAC 2000	Future Growth Rates		Forecast Based Aircraft		
	1990	1995	2000	Based Aircraft per Year			Baseline Projection	Manual Adjustment	2005	2015	2020
				1990 - 2000	1995 - 2000						
Lonesome Pine	21	19	20	(0.1)	0.2	20	0.1	0.1	20	21	21
Louisa County	10	22	34	2.4	2.4	34	2.0	2.0	44	64	74
Lunenburg County	6	4	1	(0.5)	(0.6)	1	0.0	0.0	1	1	1
Luray Caverns	18	14	9	(0.9)	(1.0)	9	0.0	0.0	9	9	9
Manassas Regional	281	246	315	3.4	13.8	315	4.0	2.3	309	332	344
Marks Municipal	5	4	4	(0.1)	0.0	4	0.0	0.0	4	4	4
Mecklenburg-Brunswick Rgnl	9	9	14	0.5	1.0	14	0.8	0.8	18	25	29
Middle Peninsula Regional	16	23	30	1.4	1.4	30	1.4	1.4	37	51	58
Mountain Empire	37	30	26	(1.1)	(0.8)	26	0.0	0.0	26	26	26
New Kent County	51	34	38	(1.3)	0.8	38	0.0	0.0	38	38	38
New London	48	43	58	1.0	3.0	58	2.0	2.0	68	88	98
New Market	14	38	33	1.9	(1.0)	33	0.5	0.5	35	40	42
New River Valley	30	21	24	(0.6)	0.6	24	0.0	0.0	24	24	24
Orange County	26	21	22	(0.4)	0.2	22	0.0	0.0	22	22	22
Shannon	133	136	141	0.8	1.0	141	0.9	0.6	139	145	148
Smith Mountain Lake	9	16	13	0.4	(0.6)	13	0.0	0.0	13	13	13
Stafford (New)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.4	39	53	60
Suffolk Municipal	40	47	80	4.0	6.6	80	2.0	2.0	90	110	120
Tangier Island	0	0	0	0.0	0.0	-	0.0	0.0	-	-	-
Tappahannock Municipal	12	10	14	0.2	0.8	14	0.5	0.5	17	-	-
Tappahanock (Replacement)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.0	-	31	36
Tazewell County	13	12	10	(0.3)	(0.4)	10	0.0	0.0	10	10	10
Twin County	10	11	14	0.4	0.6	14	0.5	0.5	17	22	24
Virginia Highlands	60	57	55	(0.5)	(0.4)	55	0.0	0.0	55	55	55
Virginia Tech	29	30	33	0.4	0.6	33	0.5	0.5	36	41	43
Wakefield Municipal	14	10	28	1.4	3.6	28	2.0	1.4	35	49	56
Warrenton-Fauquier	90	92	98	0.8	1.2	98	1.0	1.0	103	113	118
Waynesboro	46	35	26	(2.0)	(1.8)	26	0.0	0.0	26	26	26
Whitman Strip	12	14	15	0.3	0.2	15	0.3	0.3	16	19	20
William M. Tuck	25	27	19	(0.6)	(1.6)	19	0.0	0.0	19	19	19
Williamsburg-Jamestown	47	47	56	0.9	1.8	56	1.4	1.4	63	76	83
Winchester Regional	62	69	79	1.7	2.0	79	1.9	1.9	88	107	116
Subtotal	2,055	2,141	2,437	38.2	59.2	2,446			2,663	3,082	3,287
Annual Growth Rate vs 2000	1.8%	2.7%	-						1.7%	1.6%	1.5%

**Notes:**

Growth rate constrained between 0 and 2 based aircraft per year for airports with less than 100 BAC in 2000

Growth rate constrained between 0 and 4 based aircraft per year for airports with more than 100 BAC in 2000.

☐ Boxed cells indicate manual adjustments due to new airports

**TABLE 8**  
**VATSP UPDATE BASED AIRCRAFT FORECAST**

Airport Name	Historic Based Aircraft			Annual Growth Rates		BAC 2000	Future Growth Rates		Forecast Based Aircraft		
	1990	1995	2000	Based Aircraft per Year			Baseline Projection	Manual Adjustment	2005	2015	2020
				1990 - 2000	1995 - 2000						
Air Carrier Airports											
Charlottesville-Albemarle	60	55	93	3.3	7.6	93	2	2	103	123	133
Lynchburg Regional	47	32	47	0.0	3.0	47	1.5	1.0	52	62	67
Newport News-Williamsburg Intl	126	99	114	(1.2)	3.0	114	0.9	0.9	119	128	132
Norfolk International	109	78	107	(0.2)	5.8	107	2.8	0.0	107	107	107
Richmond International	75	92	108	3.3	3.2	108	3.3	1.0	113	123	128
Roanoke Regional	101	113	117	1.6	0.8	117	1.2	1.6	125	141	149
Ronald Reagan Washington Natl	37	23	20	(1.7)	(0.6)	20	0.0	0.0	20	20	20
Shenandoah Valley Regional	46	80	87	4.1	1.4	87	2.0	1.4	94	108	115
Washington Dulles Intl	49	59	52	0.3	(1.4)	52	0.0	0.0	52	52	52
Subtotal	650	631	745	9.5	22.8	730			785	864	903
Annual Growth Rate vs 2000	1.2%	3.0%	-						1.5%	1.1%	1.1%
Total	2,705	2,772	3,182	47.7	82.0	3,176			3,448	3,946	4,190
Annual Growth Rate vs 2000	1.6%	2.8%	-						1.7%	1.5%	1.4%

**Notes:**

Growth rate constrained between 0 and 2 based aircraft per year for airports with less than 100 BAC in 2000.

Growth rate constrained between 0 and 4 based aircraft per year for airports with more than 100 BAC in 2000.

☐ Boxed cells indicate manual adjustments due to new airports

**TABLE 9**  
**VATSP UPDATE, FAA, AND MASTER PLAN FORECASTS**

Airport Name	Historic Based Aircraft			VATSP Update Forecast			FAA Terminal Area Forecasts			Master Plan Forecasts			
	1990	1995	2000	2005	2015	2020	2000	2005	2015	2000	2005	2015	2020
<b>General Aviation Airports</b>													
Accomack County	14	16	25	31	42	47	14	14	14	25	26	29	30
Blackstone Municipal	5	7	7	8	9	9	12	12	12	9	10	14	16
Blue Ridge	62	64	56	56	56	56	62	67	77	73	77	83	86
Bridgewater Air Park	14	23	17	17	17	17	-	-	-	45	51	56	58
Brookneal-Campbell County	4	4	2	2	2	2	5	5	5	-	-	-	-
Chase City Municipal	2	5	5	6	7	8	5	5	5	-	-	-	-
Chesapeake Regional	62	64	70	75	85	90	68	68	68	70	77	95	104
Chesterfield County	106	109	112	130	136	139	111	111	111	129	139	157	166
Crewe Municipal	10	9	10	11	12	12	-	-	-	-	-	-	-
Culpeper County	20	90	111	131	171	191	-	-	-	57	70	96	109
Danville Regional	44	35	41	43	48	50	40	40	40	50	50	50	50
Dinwiddie County Airport	25	43	81	91	111	121	47	47	47	36	40	48	52
Emporia-Greenville Regional	7	8	3	3	3	3	6	6	6	12	14	20	23
Falwell	13	14	16	18	21	23	-	-	-	15	17	21	26
Farmville Regional	18	24	24	26	29	30	26	26	26	22	24	30	33
Franklin Municipal	7	13	12	13	14	15	13	13	13	-	-	-	-
Front Royal-Warren County	21	17	24	28	37	41	18	18	18	39	44	53	57
Gordonsville Municipal	6	11	15	19	28	32	-	-	-	-	-	-	-
Grundy Municipal	8	10	10	11	12	12	12	12	12	13	14	17	18
Hampton Roads	140	140	147	152	163	168	189	189	189	-	-	-	-
Hanover County Municipal	59	62	69	75	87	93	77	77	77	82	89	104	111
Hartwood Field	13	5	9	10	12	13	-	-	-	-	-	-	-
Hummel Field	26	27	29	31	34	35	-	-	-	-	-	-	-
Ingalls Field	2	3	6	9	14	16	6	6	6	-	-	-	-
Kellam Field	2	5	5	6	7	8	-	-	-	-	-	-	-
Lake Anna	3	2	1	1	1	1	-	-	-	-	-	-	-
Lawrenceville-Brunswick	3	4	5	6	8	9	-	-	-	5	5	7	8
Lee County	3	3	5	7	-	-	3	3	3	14	18	24	27
Lee County (Replacement)	-	-	-	-	16	18	-	-	-	-	-	-	-
Leesburg Executive	182	183	211	231	271	291	193	217	266	234	247	273	286

**TABLE 9**  
**VATSP UPDATE, FAA, AND MASTER PLAN FORECASTS**

Airport Name	Historic Based Aircraft			VATSP Update Forecast			FAA Terminal Area Forecasts			Master Plan Forecasts			
	1990	1995	2000	2005	2015	2020	2000	2005	2015	2000	2005	2015	2020
Lonesome Pine	21	19	20	20	21	21	16	16	16	-	-	-	-
Louisa County	10	22	34	44	64	74	32	32	32	29	33	46	53
Lunenburg County	6	4	1	1	1	1	5	5	5	-	-	-	-
Luray Caverns	18	14	9	9	9	9	9	9	9	29	32	38	41
Manassas Regional	281	246	315	309	332	344	377	397	438	499	553	661	715
Marks Municipal	5	4	4	4	4	4	-	-	-	4	4	6	7
Mecklenburg-Brunswick Regional	9	9	14	18	25	29	10	10	10	15	17	22	25
Middle Peninsula Regional	16	23	30	37	51	58	23	23	23	-	-	-	-
Mountain Empire	37	30	26	26	26	26	27	27	27	45	52	68	76
New Kent County	51	34	38	38	38	38	43	43	43	50	63	79	86
New London	48	43	58	68	88	98	-	-	-	-	-	-	-
New Market	14	38	33	35	40	42	-	-	-	-	-	-	-
New River Valley	30	21	24	24	24	24	21	21	21	23	24	27	29
Orange County	26	21	22	22	22	22	22	22	22	29	35	41	43
Shannon	133	136	141	139	145	148	170	170	170	-	-	-	-
Smith Mountain Lake	9	16	13	13	13	13	-	-	-	-	-	-	-
Stafford (New)	-	-	-	39	53	60	-	-	-	-	-	-	-
Suffolk Municipal	40	47	80	90	110	120	50	55	65	-	-	-	-
Tangier Island	0	0	0	-	-	-	-	-	-	-	-	-	-
Tappahannock Municipal	12	10	14	17	-	-	-	-	-	16	17	20	22
Tappahannock (Replacement)	-	-	-	-	31	36	-	-	-	-	-	-	-
Tazewell County	13	12	10	10	10	10	13	13	13	14	17	21	22
Twin County	10	11	14	17	22	24	9	9	9	12	14	16	17
Virginia Highlands	60	57	55	55	55	55	55	55	55	68	75	93	103
Virginia Tech	29	30	33	36	41	43	28	28	28	-	-	-	-
Wakefield Municipal	14	10	28	35	49	56	-	-	-	-	-	-	-
Warrenton-Fauquier	90	92	98	103	113	118	109	119	140	116	128	152	164
Waynesboro	46	35	26	26	26	26	-	-	-	37	49	75	88
Whitman Strip	12	14	15	16	19	20	-	-	-	-	-	-	-
William M. Tuck	25	27	19	19	19	19	25	25	25	24	29	35	37
Williamsburg-Jamestown	47	47	56	63	76	83	52	52	52	50	54	60	62
Winchester Regional	62	69	79	88	107	116	96	101	111	109	122	147	159
Subtotal	2,055	2,141	2,437	2,663	3,082	3,287	2,099	2,168	2,309	2,096	2,333	2,782	3,009
Annual Growth Rate vs 2000	1.7%	2.6%	-	1.8%	1.6%	1.5%		0.6%	0.6%		2.2%	1.9%	1.8%

**TABLE 9**  
**VATSP UPDATE, FAA, AND MASTER PLAN FORECASTS**

Airport Name	Historic Based Aircraft			VATSP Update Forecast			FAA Terminal Area Forecasts			Master Plan Forecasts			
	1990	1995	2000	2005	2015	2020	2000	2005	2015	2000	2005	2015	2020
<b>Air Carrier Airports</b>													
Charlottesville-Albemarle	60	55	93	103	123	133	61	65	74	70	77	92	99
Lynchburg Regional	47	32	47	52	62	67	42	46	52	44	49	59	64
Newport News-Williamsburg Intl	126	99	114	119	128	132	68	74	84	-	-	-	-
Norfolk International	109	78	107	107	107	107	102	110	125	-	-	-	-
Richmond International	75	92	108	113	123	128	251	262	281	122	122	122	122
Roanoke Regional	101	113	117	125	141	149	122	122	122	127	130	136	139
Ronald Reagan Washington Natl	37	23	20	20	20	20	24	24	24	-	-	-	-
Shenandoah Valley Regional	46	80	87	94	108	115	80	80	80	-	-	-	-
Washington Dulles Intl	49	59	52	52	52	52	40	40	40	-	-	-	-
Subtotal	650	631	745	785	864	903	790	823	882	363	378	409	424
Annual Growth Rate vs 2000	1.4%	3.4%	-	1.0%	1.0%	1.0%		0.8%	0.7%		0.8%	0.8%	0.8%
Total	2,705	2,772	3,182	3,448	3,946	4,190	2,889	2,991	3,191	2,459	2,711	3,190	3,433
Annual Growth Rate vs 2000	1.6%	2.8%	-	1.6%	1.4%	1.4%		0.7%	0.7%		2.0%	1.8%	1.7%

**TABLE 10**  
**BASED AIRCRAFT FLEET MIX**

<b>Airport Name</b>	<b>2000 Fleet Mix</b>							<b>2005 Projected Fleet Mix</b>						
	<b>SEP</b>	<b>MEP</b>	<b>MET</b>	<b>MEJ</b>	<b>HEL</b>	<b>OTH</b>	<b>TOT</b>	<b>SEP</b>	<b>MEP</b>	<b>MET</b>	<b>MEJ</b>	<b>HEL</b>	<b>OTH</b>	<b>TOT</b>
<b><u>General Aviation Airports</u></b>														
Accomack County	22	2	0	0	0	1	25	27	2	0	0	0	1	31
Blackstone Municipal	5	0	0	0	0	2	7	5	0	0	0	0	2	8
Blue Ridge	47	5	1	1	2	0	56	47	5	1	1	2	0	56
Bridgewater Air Park	0	4	13	0	0	0	17	0	4	13	0	0	0	17
Brookneal-Campbell County	2	0	0	0	0	0	2	2	0	0	0	0	0	2
Chase City Municipal	5	0	0	0	0	0	5	6	0	0	0	0	0	6
Chesapeake Regional	56	9	2	0	0	3	70	59	9	2	1	0	4	75
Chesterfield County	88	13	4	5	2	0	112	100	14	5	8	3	0	130
Crewe Municipal	9	1	0	0	0	0	10	9	1	0	0	0	0	11
Culpeper County	102	4	0	1	1	3	111	119	5	0	2	1	4	131
Danville Regional	36	3	0	2	0	0	41	37	3	0	3	0	0	43
Dinwiddie County Airport	61	11	0	0	0	9	81	66	12	1	1	0	11	91
Emporia-Greenville Regional	2	1	0	0	0	0	3	2	1	0	0	0	0	3
Falwell	14	1	1	0	0	0	16	16	1	1	0	0	0	18
Farmville Regional	18	4	1	1	0	0	24	19	4	1	1	0	0	26
Franklin Municipal	9	3	0	0	0	0	12	10	3	0	0	0	0	13
Front Royal-Warren County	19	2	0	0	0	3	24	22	2	0	0	0	4	28
Gordonsville Municipal	14	1	0	0	0	0	15	18	1	0	0	0	0	19
Grundy Municipal	8	2	0	0	0	0	10	8	2	0	0	0	0	11
Hampton Roads	129	14	1	1	2	0	147	133	14	1	1	2	0	152
Hanover County Municipal	63	3	1	1	0	1	69	68	3	1	1	0	1	75
Hartwood Field	5	1	0	0	1	2	9	5	1	0	0	1	2	10
Hummel Field	27	1	0	0	1	0	29	28	1	0	0	1	0	31
Ingalls Field	4	1	0	1	0	0	6	5	1	0	2	0	0	9
Kellam Field	3	1	0	0	0	1	5	3	1	0	0	0	1	6
Lake Anna	1	0	0	0	0	0	1	1	0	0	0	0	0	1
Lawrenceville-Brunswick	5	0	0	0	0	0	5	6	0	0	0	0	0	6
Lee County	5	0	0	0	0	0	5	7	0	0	0	0	0	7
Lee County (Replacement)	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Leesburg Executive	179	18	8	5	1	0	211	194	19	9	7	1	0	231

**TABLE 10**  
**BASED AIRCRAFT FLEET MIX**

Airport Name	2000 Fleet Mix							2005 Projected Fleet Mix						
	SEP	MEP	MET	MEJ	HEL	OTH	TOT	SEP	MEP	MET	MEJ	HEL	OTH	TOT
Lonesome Pine	12	4	0	1	1	2	20	12	4	0	1	1	2	20
Louisa County	29	3	1	1	0	0	34	37	4	1	2	0	0	44
Lunenburg County	1	0	0	0	0	0	1	1	0	0	0	0	0	1
Luray Caverns	9	0	0	0	0	0	9	9	0	0	0	0	0	9
Manassas Regional	247	31	14	14	5	4	315	235	31	13	20	6	5	309
Marks Municipal	4	0	0	0	0	0	4	4	0	0	0	0	0	4
Mecklenburg-Brunswick Rgnl	12	1	1	0	0	0	14	14	1	1	2	0	0	18
Middle Peninsula Regional	23	6	1	0	0	0	30	28	7	1	0	0	0	37
Mountain Empire	23	2	0	0	0	1	26	23	2	0	0	0	1	26
New Kent County	36	0	0	0	0	2	38	36	0	0	0	0	2	38
New London	55	1	0	0	0	2	58	64	1	0	0	0	3	68
New Market	28	2	0	0	0	3	33	30	2	0	0	0	4	35
New River Valley	21	3	0	0	0	0	24	19	3	1	1	0	0	24
Orange County	21	1	0	0	0	0	22	21	1	0	0	0	0	22
Shannon	125	14	0	0	0	2	141	123	14	0	0	0	2	139
Smith Mountain Lake	9	4	0	0	0	0	13	9	4	0	0	0	0	13
Stafford (New)	0	0	0	0	0	0	0	31	0	6	2	0	0	39
Suffolk Municipal	72	5	1	0	2	0	80	81	5	1	0	3	0	90
Tangier Island	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tappahannock Municipal	14	0	0	0	0	0	14	17	0	0	0	0	0	17
Tappahannock (Replacement)	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tazewell County	5	1	1	0	0	3	10	5	1	1	0	0	3	10
Twin County	10	0	0	0	0	4	14	11	0	0	0	0	5	17
Virginia Highlands	40	5	0	0	3	7	55	37	5	1	1	3	8	55
Virginia Tech	24	3	2	0	1	3	33	24	3	2	1	1	4	36
Wakefield Municipal	26	1	0	0	0	1	28	32	1	0	0	0	1	35
Warrenton-Fauquier	81	11	0	0	0	6	98	85	11	0	0	0	7	103
Waynesboro	15	2	0	0	0	9	26	14	2	0	0	0	10	26
Whitman Strip	0	0	0	0	0	15	15	0	0	0	0	0	16	16
William M. Tuck	19	0	0	0	0	0	19	19	0	0	0	0	0	19
Williamsburg-Jamestown	50	5	0	0	1	0	56	56	5	0	0	1	0	63
Winchester Regional	66	11	1	1	0	0	79	74	12	1	2	0	0	88
Subtotal	2,015	221	54	35	23	89	2,437	2,174	229	66	61	27	105	2,663
	82.7%	9.1%	2.2%	1.4%	0.9%	3.7%	100.0%	81.6%	8.6%	2.5%	2.3%	1.0%	3.9%	100.0%

**TABLE 10**  
**BASED AIRCRAFT FLEET MIX**

Airport Name	2000 Fleet Mix							2005 Projected Fleet Mix						
	SEP	MEP	MET	MEJ	HEL	OTH	TOT	SEP	MEP	MET	MEJ	HEL	OTH	TOT
<b><u>Air Carrier Airports</u></b>														
Charlottesville-Albemarle	62	13	5	7	1	5	93	66	14	6	10	1	6	103
Lynchburg Regional	37	6	3	1	0	0	47	41	6	3	1	0	0	52
Newport News-Williamsburg Intl	85	9	3	16	1	0	114	84	9	3	22	1	0	119
Norfolk International	54	15	23	12	3	0	107	51	14	23	16	3	0	107
Richmond International	33	24	12	30	8	1	108	31	22	12	38	9	1	113
Roanoke Regional	90	17	6	3	1	0	117	95	18	7	4	1	0	125
Ronald Reagan Washington Natl	5	4	3	6	2	0	20	4	3	3	7	2	0	20
Shenandoah Valley Regional	58	24	4	0	1	0	87	63	25	5	0	1	0	94
Washington Dulles Intl	12	11	0	28	1	0	52	10	9	0	32	1	0	52
Subtotal	436	123	59	103	18	6	745	446	120	61	131	20	7	785
	58.5%	16.5%	7.9%	13.8%	2.4%	0.8%	100.0%	56.8%	15.3%	7.8%	16.7%	2.5%	0.9%	100.0%
Total	2,451	344	113	138	41	95	3,182	2,619	349	127	192	47	112	3,448
	77.0%	10.8%	3.6%	4.3%	1.3%	3.0%	100.0%	76.0%	10.1%	3.7%	5.6%	1.4%	3.3%	100.0%

**Notes:**

Fleet mix assumed to change at average of Historic VA rate and rate of FAA active aircraft forecasts for first 5 years, at FAA rate for next ten years, and at FAA rate with jet growth tempered by 25% for the final 5 years.

**TABLE 10**  
**BASED AIRCRAFT FLEET MIX**

Airport Name	2015 Projected Fleet Mix							2020 Projected Fleet Mix						
	SEP	MEP	MET	MEJ	HEL	OTH	TOT	SEP	MEP	MET	MEJ	HEL	OTH	TOT
<b>General Aviation Airports</b>														
Accomack County	36	3	0	0	0	2	42	41	3	0	0	0	2	47
Blackstone Municipal	6	0	0	0	0	3	9	6	0	0	0	0	3	9
Blue Ridge	46	4	1	2	2	0	56	46	4	1	2	2	0	56
Bridgewater Air Park	0	3	14	0	0	0	17	0	3	14	0	0	0	17
Brookneal-Campbell County	2	0	0	0	0	0	2	2	0	0	0	0	0	2
Chase City Municipal	7	0	0	0	0	0	7	8	0	0	0	0	0	8
Chesapeake Regional	66	10	3	2	0	4	85	70	10	3	3	0	5	90
Chesterfield County	103	14	5	12	3	0	136	104	13	5	14	3	0	139
Crewe Municipal	10	1	0	0	0	0	12	11	1	0	0	0	0	12
Culpeper County	155	6	0	3	2	6	171	173	6	0	4	2	6	191
Danville Regional	40	3	0	4	0	0	48	42	3	0	5	0	0	50
Dinwiddie County Airport	80	13	1	3	0	14	111	86	14	2	3	0	16	121
Emporia-Greenville Regional	2	1	0	0	0	0	3	2	1	0	0	0	0	3
Falwell	19	1	1	0	0	0	21	20	1	2	0	0	0	23
Farmville Regional	21	4	1	2	0	0	29	22	4	1	3	0	0	30
Franklin Municipal	11	3	0	0	0	0	14	12	3	0	0	0	0	15
Front Royal-Warren County	28	3	0	0	0	6	37	32	3	0	0	0	6	41
Gordonsville Municipal	26	2	0	0	0	0	28	30	2	0	0	0	0	32
Grundy Municipal	9	2	0	0	0	0	12	10	2	0	0	0	0	12
Hampton Roads	143	14	1	2	3	0	163	147	14	1	3	3	0	168
Hanover County Municipal	78	3	1	2	0	2	87	83	3	1	3	0	2	93
Hartwood Field	6	1	0	0	2	3	12	7	1	0	0	2	3	13
Hummel Field	31	1	0	0	1	0	34	32	1	0	0	2	0	35
Ingalls Field	8	2	0	4	0	0	14	9	2	0	5	0	0	16
Kellam Field	4	1	0	0	0	2	7	5	1	0	0	0	2	8
Lake Anna	1	0	0	0	0	0	1	1	0	0	0	0	0	1
Lawrenceville-Brunswick	8	0	0	0	0	0	8	9	0	0	0	0	0	9
Lee County	14	0	2	0	0	0	16	15	0	3	0	0	0	18
Lee County (Replacement)	14	0	2	0	0	0	16	15	0	3	0	0	0	18
Leesburg Executive	225	21	11	13	2	0	271	240	21	12	15	2	0	291

**TABLE 10**  
**BASED AIRCRAFT FLEET MIX**

Airport Name	2015 Projected Fleet Mix							2020 Projected Fleet Mix						
	SEP	MEP	MET	MEJ	HEL	OTH	TOT	SEP	MEP	MET	MEJ	HEL	OTH	TOT
Lonesome Pine	12	4	0	2	1	2	21	12	3	0	2	1	2	21
Louisa County	53	5	2	4	0	0	64	61	6	2	5	0	0	74
Lunenburg County	1	0	0	0	0	0	1	1	0	0	0	0	0	1
Luray Caverns	9	0	0	0	0	0	9	9	0	0	0	0	0	9
Manassas Regional	246	30	14	30	7	5	332	251	30	15	35	7	6	344
Marks Municipal	4	0	0	0	0	0	4	4	0	0	0	0	0	4
Mecklenburg-Brunswick Rgnl	19	1	2	3	0	0	25	21	2	2	4	0	0	29
Middle Peninsula Regional	40	9	2	0	0	0	51	45	10	2	0	0	0	58
Mountain Empire	23	2	0	0	0	1	26	23	2	0	0	0	1	26
New Kent County	36	0	0	0	0	2	38	35	0	0	0	0	3	38
New London	83	1	0	0	0	4	88	92	1	0	0	0	4	98
New Market	33	2	0	0	0	4	40	35	2	0	0	0	5	42
New River Valley	19	2	1	2	0	0	24	19	2	1	2	0	0	24
Orange County	21	1	0	0	0	0	22	21	1	0	0	0	0	22
Shannon	129	14	0	0	0	3	145	132	13	0	0	0	3	148
Smith Mountain Lake	9	4	0	0	0	0	13	9	4	0	0	0	0	13
Stafford (New)	41	0	8	3	0	0	53	46	0	10	4	0	0	60
Suffolk Municipal	99	6	2	0	3	0	110	108	7	2	0	4	0	120
Tangier Island	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tappahannock Municipal	29	0	2	0	0	0	31	33	0	3	0	0	0	36
Tappahannock (Replacement)	29	0	2	0	0	0	31	33	0	3	0	0	0	36
Tazewell County	5	1	1	0	0	3	10	5	1	1	0	0	4	10
Twin County	14	0	0	0	0	7	22	16	0	0	0	0	8	24
Virginia Highlands	37	4	1	2	3	8	55	36	4	1	2	3	8	55
Virginia Tech	27	3	2	2	1	4	41	28	3	3	3	2	5	43
Wakefield Municipal	45	2	0	0	0	2	49	52	2	0	0	0	3	56
Warrenton-Fauquier	93	11	0	0	0	8	113	97	12	0	0	0	9	118
Waynesboro	14	2	0	0	0	10	26	14	2	0	0	0	11	26
Whitman Strip	0	0	0	0	0	19	19	0	0	0	0	0	20	20
William M. Tuck	19	0	0	0	0	0	19	19	0	0	0	0	0	19
Williamsburg-Jamestown	68	6	0	0	2	0	76	75	7	0	0	2	0	83
Winchester Regional	89	13	1	3	0	0	107	97	14	2	3	0	0	116
Subtotal	2,545	240	86	100	32	125	3,129	2,711	245	93	121	34	136	3,341
	81.3%	7.7%	2.8%	3.2%	1.0%	4.0%	100.0%	81.1%	7.3%	2.8%	3.6%	1.0%	4.1%	100.0%

**TABLE 10**  
**BASED AIRCRAFT FLEET MIX**

Airport Name	2015 Projected Fleet Mix							2020 Projected Fleet Mix						
	SEP	MEP	MET	MEJ	HEL	OTH	TOT	SEP	MEP	MET	MEJ	HEL	OTH	TOT
<b><u>Air Carrier Airports</u></b>														
Charlottesville-Albemarle	76	14	7	17	1	8	123	80	15	7	21	2	8	133
Lynchburg Regional	48	7	4	3	0	0	62	52	7	5	3	0	0	67
Newport News-Williamsburg Intl	83	8	3	32	1	0	128	83	8	3	36	1	0	132
Norfolk International	48	12	23	21	3	0	107	46	11	22	24	3	0	107
Richmond International	29	19	12	53	9	1	123	28	18	12	60	9	1	128
Roanoke Regional	106	18	8	7	1	0	141	112	18	8	9	2	0	149
Ronald Reagan Washington Natl	4	3	3	9	2	0	20	4	2	2	10	2	0	20
Shenandoah Valley Regional	73	28	6	0	2	0	108	79	28	6	0	2	0	115
Washington Dulles Intl	8	7	0	37	1	0	52	7	6	0	38	1	0	52
Subtotal	475	116	64	179	20	9	864	491	114	67	201	21	9	903
	55.1%	13.4%	7.5%	20.7%	2.3%	1.0%	100.0%	54.4%	12.7%	7.4%	22.2%	2.3%	1.0%	100.0%
Total	3,020	356	151	280	52	134	3,993	3,202	359	160	322	55	146	4,244
	75.6%	8.9%	3.8%	7.0%	1.3%	3.4%	100.0%	75.5%	8.5%	3.8%	7.6%	1.3%	3.4%	100.0%

**Notes:**

Fleet mix assumed to change at average of Historic VA rate and rate of FAA active aircraft forecasts for first 5 years, at FAA rate for next ten years, and at FAA rate with jet growth tempered by 25% for the final 5 years.

**TABLE 11**  
**VATSP UPDATE OPERATIONS FORECAST**

Airport Name	2000 Ops Forecast by Type - Preferred							2005 Ops Forecast by Type - Preferred						
	SEP	MEP	MET	MEJ	HEL	OTH	TOT	SEP	MEP	MET	MEJ	HEL	OTH	TOT
<b><u>General Aviation Airports</u></b>														
Accomack County	7,681	792	198	85	198	475	9,429	9,647	978	250	107	250	676	11,909
Blackstone Municipal	1,936	91	64	27	64	855	3,037	2,092	102	72	31	72	1,042	3,409
Blue Ridge	16,765	1,926	977	716	1,295	131	21,810	17,212	1,946	1,035	929	1,454	136	22,713
Bridgewater Air Park	2,697	1,251	6,753	-	333	67	11,100	2,805	1,231	7,090	-	346	69	11,541
Brookneal-Campbell County	695	15	-	-	22	4	737	717	16	-	-	23	5	760
Chase City Municipal	1,737	39	-	-	55	11	1,842	2,060	46	-	-	66	13	2,185
Chesapeake Regional	20,229	3,104	1,610	245	571	1,418	27,176	22,123	3,328	1,825	1,042	645	1,745	30,707
Chesterfield County	32,280	4,657	3,023	3,002	1,782	270	45,014	38,366	5,433	3,724	4,667	2,277	329	54,796
Crewe Municipal	3,215	332	-	-	110	22	3,679	3,488	353	-	-	120	24	3,985
Culpeper County	35,282	2,282	885	899	1,304	1,508	42,160	42,774	2,747	1,085	1,322	1,663	2,057	51,647
Danville Regional	12,656	1,238	333	1,181	333	95	15,836	13,673	1,322	368	1,678	368	105	17,513
Dinwiddie County Airport	22,513	3,753	669	287	669	3,956	31,846	25,602	4,173	1,409	1,132	801	5,048	38,165
Emporia-Greenville Regional	750	287	23	10	23	7	1,100	778	292	24	10	24	7	1,135
Falwell	5,132	386	519	-	188	38	6,263	5,871	434	625	-	216	43	7,189
Farmville Regional	6,680	1,304	720	606	201	57	9,568	7,289	1,392	815	863	224	64	10,647
Franklin Municipal	3,259	895	93	40	93	26	4,405	3,589	965	101	43	101	29	4,829
Front Royal-Warren County	7,212	709	-	-	286	1,312	9,519	8,686	837	-	-	350	1,797	11,669
Gordonsville Municipal	4,952	370	-	-	166	33	5,521	6,563	482	-	-	219	44	7,308
Grundy Municipal	2,956	586	-	-	110	22	3,674	3,213	623	-	-	119	24	3,979
Hampton Roads	45,040	5,220	1,680	1,017	1,998	332	55,287	48,087	5,477	1,828	1,290	2,266	356	59,304
Hanover County Municipal	21,864	1,554	1,073	757	554	577	26,379	24,430	1,721	1,234	1,058	625	715	29,784
Hartwood Field	2,261	338	-	-	538	861	3,998	2,544	369	-	-	664	1,083	4,660
Hummel Field	9,613	483	-	-	746	65	10,907	10,407	517	-	-	873	71	11,868
Ingalls Field	3,746	637	268	634	268	76	5,628	5,562	925	408	1,156	408	116	8,575
Kellam Field	1,214	316	43	19	43	431	2,066	1,424	361	52	22	52	573	2,485
Lake Anna	347	8	-	-	11	2	368	358	8	-	-	11	2	380
Lawrenceville-Brunswick	1,737	39	-	-	55	11	1,842	2,150	48	-	-	68	14	2,280
Lee County	1,737	39	-	-	55	11	1,842	2,329	52	-	-	74	15	2,470
Lee County (Replacement)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Leesburg Executive	63,778	7,060	5,893	3,342	2,155	496	82,724	71,751	7,822	6,877	4,820	2,517	566	94,353

**TABLE 11**  
**VATSP UPDATE OPERATIONS FORECAST**

Airport Name	2000 Ops Forecast by Type - Preferred							2005 Ops Forecast by Type - Preferred						
	SEP	MEP	MET	MEJ	HEL	OTH	TOT	SEP	MEP	MET	MEJ	HEL	OTH	TOT
Lonesome Pine	4,885	1,270	177	595	595	887	8,409	5,035	1,269	189	797	671	1,026	8,987
Louisa County	10,302	1,161	798	639	278	80	13,257	13,695	1,519	1,099	1,099	376	107	17,895
Lunenburg County	347	8	-	-	11	2	368	358	8	-	-	11	2	380
Luray Caverns	3,126	70	-	-	99	20	3,315	3,225	72	-	-	103	21	3,420
Manassas Regional	103,351	11,726	8,540	5,307	4,682	2,439	136,046	102,341	11,982	8,298	7,120	5,092	2,797	137,630
Marks Municipal	3,399	333	233	100	233	67	4,366	3,506	344	241	103	241	69	4,503
Mecklenburg-Brunswick Rgnl	4,271	420	635	50	116	33	5,526	5,345	529	815	914	164	47	7,814
Middle Peninsula Regional	8,358	1,868	759	103	239	68	11,395	10,665	2,334	1,003	131	305	87	14,525
Mountain Empire	8,018	803	206	88	206	477	9,797	8,254	813	213	91	213	556	10,141
New Kent County	12,796	304	-	-	434	923	14,457	13,140	315	-	-	449	1,077	14,980
New London	19,484	713	-	-	655	968	21,819	23,502	854	-	-	794	1,319	26,470
New Market	10,339	778	-	-	385	1,332	12,834	11,321	839	-	-	427	1,660	14,247
New River Valley	7,295	1,028	185	79	185	53	8,826	7,210	997	723	757	209	60	9,956
Orange County	7,383	424	-	-	243	49	8,099	7,623	431	-	-	251	50	8,355
Shannon	24,993	1,438	-	-	848	998	28,277	25,369	1,474	-	-	867	1,181	28,890
Smith Mountain Lake	3,480	1,118	-	-	143	29	4,769	3,609	1,134	-	-	148	30	4,920
Stafford (New)	-	-	-	-	-	-	-	12,117	534	3,644	1,009	373	107	17,784
Suffolk Municipal	25,015	2,180	1,155	272	1,472	182	30,277	28,994	2,491	1,373	317	1,848	211	35,234
Tangier Island	943	21	-	-	30	6	1,000	943	21	-	-	30	6	1,000
Tappahannock Municipal	4,863	108	-	-	155	31	5,157	5,913	132	-	-	188	38	6,270
Tappahannock (Replacement)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tazewell County	2,299	397	619	43	100	1,283	4,740	2,325	393	642	45	104	1,453	4,962
Twin County	3,872	182	128	55	128	1,710	6,074	4,602	225	158	68	158	2,291	7,501
Virginia Highlands	15,113	1,948	473	203	1,728	3,063	22,527	15,128	1,924	1,038	903	1,896	3,402	24,292
Virginia Tech	9,129	1,177	1,329	124	708	1,338	13,805	9,870	1,256	1,479	886	835	1,609	15,936
Wakefield Municipal	8,949	571	221	95	221	482	10,539	11,510	727	286	123	286	701	13,633
Warrenton-Fauquier	28,857	3,920	786	337	786	2,734	37,421	31,188	4,160	857	367	857	3,361	40,789
Waynesboro	6,694	753	-	-	349	3,834	11,630	6,763	743	-	-	366	4,332	12,204
Whitman Strip	2,178	188	-	-	269	6,328	8,963	2,434	210	-	-	301	7,072	10,017
William M. Tuck	6,390	210	147	63	147	42	6,999	6,592	217	152	65	152	43	7,220
Williamsburg-Jamestown	17,956	1,709	-	-	1,043	125	20,833	20,760	1,938	-	-	1,277	145	24,120
Winchester Regional	23,365	3,692	1,145	788	626	179	29,794	26,929	4,171	1,354	1,127	725	207	34,513
Subtotal	727,414	80,227	42,361	21,806	31,338	42,929	946,076	815,855	88,056	52,384	36,091	36,611	51,833	1,080,830
OPBA	361	363	784	623	1,363	482	388	375	384	789	589	1,335	494	406
Growth vs 2000														2.7%

**TABLE 11**  
**VATSP UPDATE OPERATIONS FORECAST**

Airport Name	2000 Ops Forecast by Type - Preferred							2005 Ops Forecast by Type - Preferred						
	SEP	MEP	MET	MEJ	HEL	OTH	TOT	SEP	MEP	MET	MEJ	HEL	OTH	TOT
<b><u>Air Carrier Airports</u></b>														
Charlottesville-Albemarle	40,335	6,553	4,263	3,598	1,746	341	56,836	44,876	7,144	4,918	5,229	2,053	388	64,608
Lynchburg Regional	34,095	4,605	3,625	1,045	936	267	44,574	38,710	5,133	4,276	1,455	1,070	306	50,949
Newport News-Williamsburg Intl	143,334	14,666	8,928	20,346	5,528	1,164	193,966	148,283	15,024	9,576	27,769	6,064	1,248	207,964
Norfolk International	27,672	5,365	10,782	4,098	2,199	303	50,419	27,683	5,239	11,123	5,347	2,372	312	52,077
Richmond International	29,142	10,758	8,603	13,494	5,730	409	68,136	29,855	10,434	8,862	17,712	6,312	442	73,617
Roanoke Regional	51,060	7,700	4,715	1,792	1,913	406	67,585	55,915	8,270	5,354	2,437	2,184	448	74,607
Ronald Reagan Washington Natl	30,520	11,272	12,640	16,475	8,247	478	79,632	29,903	10,386	12,293	20,443	8,610	493	82,127
Shenandoah Valley Regional	14,823	2,660	819	171	441	114	19,027	16,562	2,912	939	191	499	127	21,230
Washington Dulles Intl	25,744	10,601	1,411	26,449	2,566	403	67,173	24,705	9,312	1,462	31,117	2,604	418	69,618
Subtotal	396,725	74,178	55,786	87,469	29,306	3,884	647,348	416,492	73,855	58,804	111,700	31,767	4,181	696,797
OPBA	910	603	946	849	1,628	647	869	934	617	962	853	1,617	578	888
Growth vs 2000														1.5%
Total	1,124,139	154,405	98,147	109,275	60,644	46,813	1,593,424	1,232,347	161,911	111,187	147,790	68,378	56,013	1,777,627
OPBA	459	449	869	792	1,479	493	501	470	464	872	769	1,453	499	516
Growth vs 2000														2.2%

**TABLE 11**  
**VATSP UPDATE OPERATIONS FORECAST**

Airport Name	2015 Ops Forecast by Type - Preferred							2020 Ops Forecast by Type - Preferred						
	SEP	MEP	MET	MEJ	HEL	OTH	TOT	SEP	MEP	MET	MEJ	HEL	OTH	TOT
<b>General Aviation Airports</b>														
Accomack County	13,999	1,357	363	155	363	1,040	17,277	16,370	1,553	424	182	424	1,252	20,205
Blackstone Municipal	2,495	124	87	37	87	1,312	4,142	2,709	136	95	41	95	1,464	4,541
Blue Ridge	18,260	1,976	1,132	1,345	1,618	147	24,478	18,809	1,992	1,184	1,554	1,707	152	25,398
Bridgewater Air Park	3,019	1,217	7,740	-	373	75	12,423	3,131	1,211	8,079	-	387	77	12,885
Brookneal-Campbell County	763	17	-	-	24	5	809	787	18	-	-	25	5	834
Chase City Municipal	2,764	62	-	-	88	18	2,932	3,147	70	-	-	100	20	3,337
Chesapeake Regional	26,671	3,811	2,274	1,690	787	2,223	37,455	29,125	4,059	2,524	2,060	864	2,496	41,127
Chesterfield County	42,346	5,712	4,252	7,245	2,625	375	62,556	44,476	5,860	4,541	8,595	2,816	400	66,689
Crewe Municipal	4,086	391	-	-	139	28	4,644	4,408	411	-	-	150	30	4,999
Culpeper County	59,251	3,706	1,517	2,393	2,372	3,008	72,247	68,178	4,211	1,754	3,048	2,771	3,556	83,517
Danville Regional	15,885	1,483	444	2,753	444	127	21,135	17,074	1,567	485	3,346	485	139	23,096
Dinwiddie County Airport	33,177	5,133	1,874	1,946	1,052	6,926	50,108	37,272	5,622	2,133	2,430	1,190	8,006	56,654
Emporia-Greenville Regional	842	298	25	11	25	7	1,208	875	300	26	11	26	7	1,246
Falwell	7,491	529	837	-	276	55	9,188	8,370	578	958	-	308	62	10,275
Farmville Regional	8,631	1,556	999	1,438	272	78	12,974	9,355	1,640	1,101	1,761	299	85	14,241
Franklin Municipal	4,321	1,096	121	52	121	34	5,744	4,719	1,163	131	56	131	37	6,237
Front Royal-Warren County	12,011	1,100	-	-	487	2,639	16,237	13,813	1,235	-	-	562	3,127	18,736
Gordonsville Municipal	10,101	707	-	-	336	67	11,212	12,035	822	-	-	400	80	13,337
Grundy Municipal	3,781	691	-	-	139	28	4,638	4,088	725	-	-	150	30	4,993
Hampton Roads	54,799	5,952	2,121	1,878	2,668	407	67,826	58,402	6,198	2,281	2,200	2,892	434	72,408
Hanover County Municipal	30,050	2,057	1,563	1,758	780	924	37,132	33,083	2,234	1,745	2,165	864	1,043	41,133
Hartwood Field	3,230	443	-	-	884	1,449	6,006	3,598	480	-	-	1,009	1,656	6,743
Hummel Field	12,164	583	-	-	1,064	83	13,895	13,110	617	-	-	1,171	90	14,988
Ingalls Field	9,639	1,541	733	2,552	733	209	15,406	11,903	1,871	917	3,416	917	262	19,287
Kellam Field	1,914	458	71	30	71	817	3,361	2,180	507	81	35	81	959	3,842
Lake Anna	381	8	-	-	12	2	404	393	9	-	-	13	3	417
Lawrenceville-Brunswick	3,050	68	-	-	97	19	3,235	3,540	79	-	-	113	23	3,754
Lee County	5,701	155	1,244	-	221	44	7,365	6,606	180	1,475	-	257	51	8,569
Lee County (Replacement)	5,480	221	1,399	66	155	44	7,365	6,349	257	1,655	77	180	51	8,569
Leesburg Executive	89,204	9,321	8,855	8,290	3,220	718	119,608	98,626	10,096	9,964	10,316	3,609	800	133,412

**TABLE 11**  
**VATSP UPDATE OPERATIONS FORECAST**

Airport Name	2015 Ops Forecast by Type - Preferred							2020 Ops Forecast by Type - Preferred						
	SEP	MEP	MET	MEJ	HEL	OTH	TOT	SEP	MEP	MET	MEJ	HEL	OTH	TOT
Lonesome Pine	5,451	1,288	212	1,207	759	1,160	10,076	5,672	1,299	224	1,414	807	1,233	10,649
Louisa County	21,086	2,241	1,750	2,361	592	169	28,200	25,091	2,613	2,119	3,169	712	203	33,907
Lunenburg County	381	8	-	-	12	2	404	393	9	-	-	13	3	417
Luray Caverns	3,432	76	-	-	109	22	3,639	3,540	79	-	-	113	23	3,754
Manassas Regional	114,825	12,863	9,629	11,055	5,934	3,287	157,594	121,515	13,324	10,363	13,167	6,399	3,560	168,328
Marks Municipal	3,731	366	256	110	256	73	4,792	3,848	378	264	113	264	76	4,943
Mecklenburg-Brunswick Rgnl	7,954	765	1,250	1,917	257	73	12,217	9,354	888	1,493	2,544	308	88	14,675
Middle Peninsula Regional	15,785	3,263	1,537	192	448	128	21,353	18,598	3,737	1,842	226	527	150	25,080
Mountain Empire	8,802	830	227	97	227	629	10,812	9,088	839	234	100	234	668	11,164
New Kent County	13,950	336	-	-	479	1,212	15,977	14,373	347	-	-	495	1,286	16,501
New London	32,343	1,148	-	-	1,095	1,922	36,509	37,140	1,304	-	-	1,259	2,271	41,975
New Market	13,573	961	-	-	515	2,113	17,163	14,786	1,024	-	-	562	2,372	18,744
New River Valley	7,623	1,004	791	1,123	228	65	10,835	7,841	1,009	828	1,305	237	68	11,288
Orange County	8,130	441	-	-	267	53	8,891	8,395	446	-	-	275	55	9,171
Shannon	28,328	1,579	-	-	968	1,394	32,268	29,910	1,634	-	-	1,022	1,514	34,079
Smith Mountain Lake	3,895	1,153	-	-	157	31	5,236	4,046	1,162	-	-	162	32	5,402
Stafford (New)	17,302	785	5,387	1,996	550	157	26,177	20,088	924	6,364	2,606	647	185	30,815
Suffolk Municipal	37,769	3,116	1,830	413	2,510	275	45,915	42,532	3,441	2,085	465	2,888	310	51,722
Tangier Island	943	21	-	-	30	6	1,000	943	21	-	-	30	6	1,000
Tappahannock Municipal	11,404	283	1,294	-	404	81	13,466	13,650	339	1,585	-	485	97	16,157
Tappahannock (Replacement)	11,000	404	1,577	121	283	81	13,466	13,166	485	1,925	145	339	97	16,157
Tazewell County	2,458	396	701	48	112	1,615	5,330	2,526	399	732	50	116	1,702	5,524
Twin County	6,310	314	220	94	220	3,318	10,477	7,225	363	254	109	254	3,904	12,110
Virginia Highlands	15,975	1,948	1,129	1,288	2,100	3,785	26,226	16,416	1,962	1,178	1,479	2,210	3,993	27,237
Virginia Tech	11,871	1,449	1,838	1,473	1,050	2,032	19,713	12,943	1,549	2,037	1,804	1,170	2,271	21,775
Wakefield Municipal	17,149	1,051	427	183	427	1,106	20,344	20,217	1,222	504	216	504	1,342	24,004
Warrenton-Fauquier	36,514	4,633	1,003	430	1,003	4,180	47,762	39,380	4,875	1,082	464	1,082	4,647	51,530
Waynesboro	7,142	747	-	-	393	4,818	13,101	7,338	750	-	-	407	5,078	13,573
Whitman Strip	2,989	258	-	-	369	8,683	12,299	3,288	284	-	-	406	9,554	13,532
William M. Tuck	7,014	230	161	69	161	46	7,683	7,236	238	166	71	166	48	7,925
Williamsburg-Jamestown	26,939	2,387	-	-	1,706	187	31,219	30,299	2,616	-	-	1,949	210	35,074
Winchester Regional	34,759	5,104	1,792	1,951	941	269	44,816	39,016	5,580	2,037	2,445	1,059	303	50,440
Subtotal	1,022,335	103,224	70,660	59,769	46,096	65,881	1,367,966	1,126,385	110,838	78,870	73,187	51,099	73,745	1,514,124
OPBA	402	430	821	595	1,447	525	437	416	453	845	605	1,491	541	453
Growth vs 2000							2.5%							2.4%

**TABLE 11**  
**VATSP UPDATE OPERATIONS FORECAST**

Airport Name	2015 Ops Forecast by Type - Preferred							2020 Ops Forecast by Type - Preferred						
	SEP	MEP	MET	MEJ	HEL	OTH	TOT	SEP	MEP	MET	MEJ	HEL	OTH	TOT
<b><u>Air Carrier Airports</u></b>														
Charlottesville-Albemarle	55,311	8,354	6,271	9,058	2,631	493	82,118	60,857	8,961	7,018	11,257	2,949	550	91,591
Lynchburg Regional	48,848	6,165	5,597	2,429	1,361	389	64,787	54,318	6,692	6,339	3,001	1,518	434	72,302
Newport News-Williamsburg Intl	160,613	15,784	10,781	42,456	6,919	1,428	237,981	167,529	16,228	11,451	49,992	7,388	1,525	254,113
Norfolk International	28,258	5,057	11,612	7,624	2,522	332	55,405	28,629	4,990	11,907	8,686	2,606	343	57,162
Richmond International	32,331	10,211	9,470	25,860	6,894	512	85,279	33,806	10,202	9,869	29,882	7,256	549	91,564
Roanoke Regional	66,681	9,366	6,612	3,897	2,670	539	89,764	72,472	9,925	7,313	4,726	2,939	588	97,963
Ronald Reagan Washington Natl	29,798	9,296	11,888	27,079	8,514	523	87,097	29,974	8,917	11,836	29,923	8,564	539	89,753
Shenandoah Valley Regional	20,513	3,413	1,192	235	619	157	26,129	22,670	3,670	1,334	259	685	173	28,790
Washington Dulles Intl	24,069	7,822	1,564	37,984	2,580	447	74,467	24,085	7,364	1,616	40,820	2,602	462	76,949
Subtotal		75,469	64,987	156,621	34,711	4,818	803,027	494,341	76,948	68,683	178,546	36,510	5,161	860,188
OPBA		652	1,008	875	1,713	561	930	1,006	673	1,032	890	1,758	554	953
Growth vs 2000							1.4%							1.4%
Total	1,488,757	178,693	135,647	216,391	80,807	70,699	2,170,993	1,620,726	187,786	147,553	251,732	87,608	78,906	2,374,311
OPBA	493	502	901	774	1,550	527	544	506	523	923	782	1,592	542	560
Growth vs 2000							2.1%							2.0%

**TABLE 12**  
**OPERATIONS FORECAST COMPARISON**

Airport Name	VATSP Update Forecast				FAA Terminal Area Forecasts			Master Plan Forecasts			
	2000	2005	2015	2020	2000	2005	2015	2000	2005	2015	2020
<b>General Aviation Airports</b>											
Accomack County	9,429	11,909	17,277	20,205	6,740	6,722	6,686	14,972	15,459	16,726	17,456
Blackstone Municipal	3,037	3,409	4,142	4,541	22,030	22,030	22,030	22,330	24,765	29,635	32,160
Blue Ridge	21,810	22,713	24,478	25,398	23,134	24,096	26,022	38,251	40,199	43,121	44,582
Bridgewater Air Park	11,100	11,541	12,423	12,885	-	-	-	21,920	27,860	31,640	33,440
Brookneal-Campbell County	737	760	809	834	4,800	4,800	4,800	-	-	-	-
Chase City Municipal	1,842	2,185	2,932	3,337	3,210	3,210	3,210	-	-	-	-
Chesapeake Regional	27,176	30,707	37,455	41,127	42,200	42,200	42,200	109,729	45,854	56,502	61,905
Chesterfield County	45,014	54,796	62,556	66,689	75,600	75,600	75,600	79,818	86,065	100,846	109,081
Crewe Municipal	3,679	3,985	4,644	4,999	-	-	-	-	-	-	-
Culpeper County	42,160	51,647	72,247	83,517	-	-	-	35,615	45,500	66,550	77,075
Danville Regional	15,836	17,513	21,135	23,096	30,425	30,425	30,425	44,250	46,000	49,500	51,250
Dinwiddie County Airport	31,846	38,165	50,108	56,654	16,200	16,200	16,200	20,232	22,277	26,173	28,121
Emporia-Greenville Regional	1,100	1,135	1,208	1,246	7,455	7,455	7,455	8,400	10,920	16,720	19,620
Falwell	6,263	7,189	9,188	10,275	-	-	-	10,228	11,011	12,831	13,821
Farmville Regional	9,568	10,647	12,974	14,241	7,125	7,125	7,125	11,800	13,920	18,520	20,820
Franklin Municipal	4,405	4,829	5,744	6,237	6,900	6,900	6,900	-	-	-	-
Front Royal-Warren County	9,519	11,669	16,237	18,736	8,300	8,300	8,300	26,013	29,015	35,018	38,019
Gordonsville Municipal	5,521	7,308	11,212	13,337	-	-	-	-	-	-	-
Grundy Municipal	3,674	3,979	4,638	4,993	4,360	4,360	4,360	6,120	6,700	8,150	8,900
Hampton Roads	55,287	59,304	67,826	72,408	76,305	76,305	76,305	-	-	-	-
Hanover County Municipal	26,379	29,784	37,132	41,133	59,650	59,650	59,650	64,010	70,860	83,910	90,360
Hartwood Field	3,998	4,660	6,006	6,743	-	-	-	-	-	-	-
Hummel Field	10,907	11,868	13,895	14,988	-	-	-	-	-	-	-
Ingalls Field	5,628	8,575	15,406	19,287	5,000	5,000	5,000	-	-	-	-
Kellam Field	2,066	2,485	3,361	3,842	-	-	-	-	-	-	-
Lake Anna	368	380	404	417	-	-	-	-	-	-	-
Lawrenceville-Brunswick	1,842	2,280	3,235	3,754	-	-	-	5,135	5,233	6,206	6,693
Lee County	1,842	2,470	7,365	8,569	3,010	3,010	3,010	7,570	8,544	12,884	15,676
Lee County (Replacement)	-	-	7,365	8,569	-	-	-	-	-	-	-
Leesburg Executive	82,724	94,353	119,608	133,412	100,503	115,060	144,172	96,780	102,230	113,130	118,580

**TABLE 12**  
**OPERATIONS FORECAST COMPARISON**

Airport Name	VATSP Update Forecast				FAA Terminal Area Forecasts			Master Plan Forecasts			
	2000	2005	2015	2020	2000	2005	2015	2000	2005	2015	2020
Lonesome Pine	8,409	8,987	10,076	10,649	6,275	6,275	6,275	-	-	-	-
Louisa County	13,257	17,895	28,200	33,907	6,250	6,250	6,250	-	-	-	-
Lunenburg County	368	380	404	417	4,410	4,410	4,410	-	-	-	-
Luray Caverns	3,315	3,420	3,639	3,754	10,120	10,120	10,120	12,470	13,820	16,520	17,870
Manassas Regional	136,046	137,630	157,594	168,328	131,253	138,658	152,131	199,600	221,200	264,400	286,000
Marks Municipal	4,366	4,503	4,792	4,943	-	-	-	4,452	4,867	5,818	6,315
Mecklenburg-Brunswick Rgnl	5,526	7,814	12,217	14,675	1,000	1,000	1,000	11,836	13,415	16,534	18,093
Middle Peninsula Regional	11,395	14,525	21,353	25,080	7,780	7,780	7,780	-	-	-	-
Mountain Empire	9,797	10,141	10,812	11,164	15,875	15,875	15,875	-	-	-	-
New Kent County	14,457	14,980	15,977	16,501	18,350	18,350	18,350	24,560	30,720	38,270	41,920
New London	21,819	26,470	36,509	41,975	-	-	-	-	-	-	-
New Market	12,834	14,247	17,163	18,744	-	-	-	-	-	-	-
New River Valley	8,826	9,956	10,835	11,288	13,000	13,000	13,000	17,858	19,427	22,655	24,174
Orange County	8,099	8,355	8,891	9,171	20,010	20,010	20,010	14,140	17,020	19,750	21,000
Shannon	28,277	28,890	32,268	34,079	22,450	22,450	22,450	-	-	-	-
Smith Mountain Lake	4,769	4,920	5,236	5,402	-	-	-	-	-	-	-
Stafford (New)	-	17,784	26,177	30,815	-	-	-	-	-	-	-
Suffolk Municipal	30,277	35,234	45,915	51,722	10,886	12,041	14,352	-	-	-	-
Tangier Island	1,000	1,000	1,000	1,000	7,012	7,012	7,012	-	-	-	-
Tappahannock Municipal	5,157	6,270	13,466	16,157	-	-	-	10,654	11,174	12,830	13,804
Tappahannock (Replacement)	-	-	13,466	16,157	-	-	-	-	-	-	-
Tazewell County	4,740	4,962	5,330	5,524	6,000	6,000	6,000	6,920	8,500	10,060	10,760
Twin County	6,074	7,501	10,477	12,110	16,910	16,910	16,910	5,620	6,600	7,700	8,200
Virginia Highlands	22,527	24,292	26,226	27,237	15,000	15,000	15,000	18,229	20,078	24,579	26,985
Virginia Tech	13,805	15,936	19,713	21,775	35,267	37,762	42,753	-	-	-	-
Wakefield Municipal	10,539	13,633	20,344	24,004	-	-	-	-	-	-	-
Warrenton-Fauquier	37,421	40,789	47,762	51,530	36,019	40,243	48,694	53,367	67,183	95,017	108,934
Waynesboro	11,630	12,204	13,101	13,573	-	-	-	13,127	16,757	23,374	26,624
Whitman Strip	8,963	10,017	12,299	13,532	-	-	-	-	-	-	-
William M. Tuck	6,999	7,220	7,683	7,925	15,120	15,120	15,120	11,520	14,120	16,760	17,960
Williamsburg-Jamestown	20,833	24,120	31,219	35,074	17,960	17,960	17,960	26,955	29,098	32,074	33,156
Winchester Regional	29,794	34,513	44,816	50,440	53,361	58,018	67,332	81,600	91,125	109,875	119,250
Subtotal	946,076	1,080,830	1,367,966	1,514,124	973,255	1,008,692	1,078,234	1,136,081	1,197,515	1,444,278	1,568,606
Growth vs 2000		2.7%	2.5%	2.4%		0.7%	0.7%		1.1%	1.6%	1.6%

**TABLE 12**  
**OPERATIONS FORECAST COMPARISON**

Airport Name	VATSP Update Forecast				FAA Terminal Area Forecasts			Master Plan Forecasts			
	2000	2005	2015	2020	2000	2005	2015	2000	2005	2015	2020
<b><u>Air Carrier Airports</u></b>											
Charlottesville-Albemarle	56,836	64,608	82,118	91,591	70,307	76,748	88,980	46,107	49,687	61,591	71,511
Lynchburg Regional	44,574	50,949	64,787	72,302	41,128	44,273	50,364	56,244	63,210	76,110	82,560
Newport News-Williamsburg Intl	193,966	207,964	237,981	254,113	185,646	196,992	222,633	-	-	-	-
Norfolk International	50,419	52,077	55,405	57,162	50,646	50,646	50,646	70,600	77,200	92,300	120,600
Richmond International	68,136	73,617	85,279	91,564	57,163	60,940	69,495	92,000	92,000	92,000	92,000
Roanoke Regional	67,585	74,607	89,764	97,963	65,528	65,528	65,528	-	-	-	-
Ronald Reagan Washington Natl	79,632	82,127	87,097	89,753	65,516	65,516	65,516	-	-	-	-
Shenandoah Valley Regional	19,027	21,230	26,129	28,790	19,027	19,027	19,027	-	-	-	-
Washington Dulles Intl	67,173	69,618	74,467	76,949	71,222	72,847	76,098	-	-	-	-
Subtotal	647,348	696,797	803,027	860,188	626,183	652,517	708,287	264,951	282,097	322,001	366,671
Growth vs 2000		1.5%	1.4%	1.4%		0.8%	0.8%		1.3%	1.3%	1.6%
Total	1,593,424	1,777,627	2,170,993	2,374,311	1,599,438	1,661,209	1,786,521	1,401,032	1,479,612	1,766,279	1,935,277
Growth vs 2000		2.2%	2.1%	2.0%		0.8%	0.7%		1.1%	1.6%	1.6%